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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,885	02/09/2004	Alexander Berger	MS307300.1/MSFTP606US	8812
27195	7590	07/19/2006	EXAMINER	
AMIN. TUROCY & CALVIN, LLP 24TH FLOOR, NATIONAL CITY CENTER 1900 EAST NINTH STREET CLEVELAND, OH 44114			DAYE, CHELCIE L	
			ART UNIT	PAPER NUMBER
			2161	

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/774,885

Applicant(s)

BERGER ET AL.

Examiner

Chelcie Daye

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/16/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This action is issued in response to Application filed February 9, 2004.
2. Claims 1-25 and 27-31 are pending.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 6/16/2004 was filed after the mailing date of the application on 2/9/2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the specification: Fig.8, item 830 and Fig.9, items 928 and 934. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

5. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Since misnumbered claim 26 has been skipped over, claim 26 needs to be labeled as "cancelled".

6. Claims 9, 13, and 22 are objected to because of the following informalities: claim 9 is missing the word "and" after the word "groups" within the second limitation, claim 13 is missing the word "wherein" before the phrase "the database" within the claim language, and claim 22 is missing the word "and" after the word "partitions" within the second limitation. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-25 and 27-31 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentability utility.

The basis of this rejection is set forth in a test of whether the invention is categorized as a process, machine, manufacture or composition of matter and if the invention produces a useful, concrete and tangible result. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) are found to be non-statutory subject matter. For a method claim to pass muster, the recited process must produce a useful, concrete and tangible result.

In the present case, claims 1-13 recite a distinct count query system, which comprises a query process component, a range component, and a group component. However, the stated components within the distinct count query system do not necessarily include hardware so as to establish a statutory category of a machine or manufacturer, such that the system is not software alone. Also, the system fails to produce a tangible and useful result from the processed data, which is then simply manipulation of an abstract idea.

Also, in the present case, claims 14-25 and 27-31 recite a method for executing a distinct count query, which determines, identifies, and executes. However, the method fails to produce a tangible and useful result from the processed data. Also, claims 21 and 31 recite "computer readable medium", wherein according to the specification the computer readable medium could also be classified as a carrier. The carrier is merely an abstract idea, which is a non-statutory category.

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (lack of utility) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention with utility.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-25 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mittal (US Patent Application No. 20050138001) provisional filed December 23, 2003, in view of Agrawal (US Patent No. 5,926,820) filed February 27, 1997, and further in view of Ballamkonda (US Patent No. 6,775,682) filed February 26, 2002.**

Regarding Claims 1,9,10,and 14, Mittal discloses a distinct count query system comprising:

a query process component ([0047], lines 1-10, Mittal) to retrieve a plurality of partitions from a database (Fig.4; [0058], lines 1-22, Mittal)<sup>1</sup>. However, Mittal is silent with respect to a range component that determines the maximum

and minimum values associated with each partition. On the other hand, Agrawal discloses a range component that determines the maximum and minimum values associated with each partition (columns 6-7, lines 60-67 and 1-17, respectively, Agrawal). Mittal and Agrawal are analogous art because they are from the same field of endeavor of efficiently performing a distinct count metric. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Agrawal's teachings into the Mittal system. A skilled artisan would have been motivated to combine as suggested by Agrawal at column 3, lines 36-43, in order to allow queries which specify ranges over multiple dimensions to be processed quickly in the average case. As well as to allow each dimension to have a space overhead which is linear in the number of data points. However, the combination of Mittal in view of Agrawal are silent with respect to a group component that utilizes the maximum and minimum range values to determine independent partitions or partition groups, wherein independent partitions or partition groups are executed concurrently with other partitions. On the other hand, Ballamkonda discloses a group component that utilizes the maximum and minimum range values to determine independent partitions or partition groups (column 10, lines 46-51, Ballamkonda), wherein independent partitions or partition groups are executed concurrently with other partitions (column 10, lines 10-28, Ballamkonda)<sup>2</sup>. The combination of Mittal in view of Agrawal, and further in view of Ballamkonda are analogous art because they are from the same field

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<sup>1</sup> Examiner Notes: "Dimensions" corresponds with partitions.

of endeavor of efficiently evaluating database queries including distinct aggregates. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ballamkonda's teachings into the Mittal in view of Agrawal system. A skilled artisan would have been motivated to combine as suggested by Ballamkonda at column 4, lines 32-41, in order to have fewer data records to sort and from which to eliminate duplicates, resulting in a more proficient database system.

Regarding Claim 2, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the database is an OLAP database (column 3, lines 45-51, Agrawal).

Regarding Claim 3, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system further comprising a buffer component to facilitate execution of the distinct count query on sections of the partitions (column 7, lines 8-18, Ballamkonda).

Regarding Claims 4 and 15, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the partitions contain one or more numeric identifiers (Fig.5; [0061], lines 1-16, Mittal).

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<sup>2</sup> Examiner Notes: "Parallel" corresponds with concurrent.



Regarding Claims 5,12,16,and 17, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the numeric identifiers are ordered in ascending order from smallest to largest value (Fig.5, Mittal).

Regarding Claim 6, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the numeric identifier is a customer ID (Fig.3; [0035], lines 1-18, Mittal).

Regarding Claim 7, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the numeric identifier is a product ID (Fig.3; [0035], lines 1-18, Mittal).

Regarding Claims 8 and 20, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein partitions with overlapping ranges are executed in parallel (column 4, lines 32-46, Agrawal).

Regarding Claims 11 and 19, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system wherein the independent

partition groups have a non-overlapping range with respect to other partitions (columns 7-8, lines 50-67 and 1-10, respectively, Agrawal)<sup>3</sup>.

Regarding Claim 13, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the system, the database is a multidimensional database ([0020], lines 1-4, Mittal).

Regarding Claim 18, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method wherein the ranges are determined by retrieving the first and last values from each partition (columns 6-7, lines 60-67 and 1-17, respectively, Agrawal).

Regarding Claim 21, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose a computer readable medium having stored thereon computer executable instructions for carrying out the method ([0044], lines 1-12, Mittal).

Regarding Claims 22 and 23, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose a method for executing a distinct count query on a database comprising:

pre-aggregating database data (Fig.4; [0058], lines 1-22, Mittal)<sup>4</sup>;

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<sup>3</sup> Examiner Notes: Any of the partitions with ranges that are not intersecting is considered to be non-

determining a minimum and maximum range of a plurality of data partitions (columns 6-7, lines 60-67 and 1-17, respectively, Agrawal);

identifying independent partition groups to be executed simultaneously with other queried partitions (column 10, lines 10-28, Ballamkonda), the independent partition groups including one or more partitions with a non-overlapping range with respect to other queried partitions (columns 7-8, lines 50-67 and 1-10, respectively, Agrawal).

Regarding Claim 24, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method wherein data is separated automatically based on heuristics associated with the database (column 9, lines 45-67, Ballamkonda).

Regarding Claim 25, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method wherein pre-aggregating database data comprises ordering partition data (Fig.5, Mittal).

Regarding Claim 27, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method wherein pre-aggregating database data comprises eliminating redundant data in each partition (column 10, lines 29-45, Ballamkonda).

Regarding Claim 28, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method wherein the other queried partitions include overlapping ranges, which are executed synchronously and in parallel (column 4, lines 32-46, Agrawal).

Regarding Claim 29, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method further comprising executing the distinct count query on sections of partitions utilizing a buffer (column 7, lines 8-18, Ballamkonda).

Regarding Claim 30, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose the method the database is an OLAP database (column 3, lines 45-51, Agrawal).

Regarding Claim 31, the combination of Mittal in view of Agrawal, and further in view of Ballamkonda, disclose a computer readable medium having stored thereon computer executable instructions for carrying out the method ([0044], lines 1-12, Mittal).

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<sup>4</sup> Examiner Notes: Applicant has disclosed "pre-aggregating" to include partitioning and ordering data. Therefore, "dimensions" correspond to the partitions and Fig.4 show the dimensions in an ordered state.

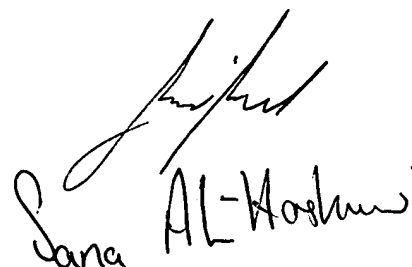
***Points of Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chelcie Daye whose telephone number is 571-272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chelcie Daye  
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July 12, 2006

  
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